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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/735,902

12/16/2003

Yoichi Takada

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EXAMINER

SHAH, MANISH S

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 05/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/735,902

Applicant(s)

TAKADA ET AL.

Examiner

Manish S. Shah

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 02/20/03/04/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

1. Claims 10 & 12 are objected to because of the following informalities: With respect to claim 10, applicant claiming " The ink set according to claim 9, wherein the second component....." However, claim 9 is not claiming a second component. Same thing for claim 12 also. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-10 & 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagai et al. (# US 5993524).

Nagai et al. discloses an image recording method for forming image on recording medium, wherein an ink set including a coloring material in a state dissolved or dispersed in an aqueous medium (column: 12, line: 15-67; column: 13, line: 1-15) and a water-based reactive liquid (image recording acceleration liquid) (column: 5, line: 20-30) containing a first component (multivalent metal ion) for insolubilizing or aggregating the coloring material in the ink by mixing with the water-based ink (column: 10, line: 60-67;

column: 11, line: 1-10), wherein the water based reactive liquid contains a water soluble high molecular compound (viscosity-increasing assisting compound) (hydroxyl group) in a state dissolve therein (column: 6, line: 20-30), the water-based ink contains a second component (boric acid ion) (column: 6, line: 34-36), which is not insolubilized by the first component and the coloring material, in a state dissolved therein, and the water soluble high molecular compound is not insolubilized by the first component and the coloring material but insolubilized by the second component (column: 6, line: 30-40; column: 13, line: 30-65). They also disclose that the first component is a cationic substance and a polyvalent metal ion, wherein the polyvalent metal is selected from Ca, Al, Ba, Mg, Zn (column: 11, line: 1-6). They also disclose that the coloring material in the ink contains either an anionic dye (column: 12, line: 55-60) or a pigment with an anionic dispersing agent (column: 13, line: 20-60). They also disclose that the water-soluble high molecular compound has a hydroxyl group, which includes a polyvinyl alcohol (column: 6, line: 20-26). With respect to claims 13-14, they disclose a process for forming an image on a recording medium including the steps of applying a water-based reactive liquid (image recording acceleration liquid) on the recording medium and then applying water-based ink thereon (figure: 1, column: 15, line: 15-60; see Examples). They also disclose that the water based reactive liquid applied on the whole recording medium and then applying the water-based ink according to image data (see Examples).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai et al. (# US 5993524) in view of Tanimoto et al. (# JP 2000-136336 A):

Nagai et al. discloses the all the limitations of the claimed invention except that the water-soluble high molecular compound has an acetoacetyl group.

Tanimoto et al. teaches that to get the water resistance and solvent resistance printed image, water-based composition has a vinyl alcohol polymer has a hydroxyl group and acetoacetyl group (see Abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the water-soluble high molecular compound of Nagai et al. by the aforementioned teaching of Tanimoto et al. in order to have the water resistance and solvent resistance coating layer on recording medium.

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai et al. (# US 5993524) in view of Mihoya et al. (# JP 07-034008 A).

Nagai et al. discloses the all the limitations of the claimed invention except that the second component is adipic dihydrazide.

Mihoya et al. teaches that to get the excellent storage stability, water resistance and good pigment dispersion, water-based coating composition (water-based ink composition) includes adipic dihydrazide (see Abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the water-based ink composition of Nagai et al. by the aforementioned teaching of Mihoya et al. in order to have ink composition with good pigment dispersion and excellent storage stability, and it gives water resistance printed image.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(1) Shirota et al. (# US 5792249) discloses an image recording method including the steps of coating a recording medium with reaction solution (liquid composition) (see Abstract; column: 7, line: 49-62) capable of destabilizing the dissolved or dispersed state of the coloring material in the ink in contact with the ink (see Abstract; column: 4, line: 15-40) and an ink containing a coloring material in a dissolve or dispersed state (dye) (column: 6, line: 64-67; column: 7, line: 1-10), and coating the ink on the recording medium by an inkjet method (column: 7, line: 60-67), wherein the reaction solution contains at least a polyvalent metal salt (multivalent ion) in an amount from 0.05 to 8.0 % by weight (column: 5, line: 5-25) and a nonionic polymer (polyvinyl alcohol) (column:

5, line: 48-61), and viscosity of the reaction solution is from 1 to 30 cps (column: 6, line: 40-45). They also disclose that the physical value of the liquid composition and ink composition is almost same (column: 6, line: 40-42; column: 7, line: 12-20).

(2) Koyano et al. (# US 2003/0064206 A1) discloses a set of an ink and reaction solution (pretreatment liquid) (see Abstract) for use in image recording in conjunction with ink containing a coloring material in a dissolve or dispersed state ([0161]-[0174]), the reaction solution destabilizing the dissolved or dispersed state of the coloring material in the ink contact with the ink. They also disclose that the reaction solution including polyvalent metal ion (salt) ([0116]) and organic solvent ([0131]-[0136]) and have a pH of 2 or higher ([0156]). They also disclose that the amount of polyvalent metal salt is from 0.01 to 10% by weight (see Examples). They also disclose that the reaction solution further contains a strong acid ion ([0158]-[0159]) and a buffer ([0118]-[0122]). They also disclose that the pH of the reaction solution is 7 or lower ([0156]). They also disclose that the pH of the reaction solution is controlled by the controlling agent, wherein the controlling agent is selected from lithium hydroxide, sodium hydroxide, potassium hydroxide ([0157]). They also disclose that the ink jet recording apparatus including a coating roller for coating the reaction solution on a recording medium (element: 42, figure: 1,2), and an amount of the reaction solution applied on the recording medium is from 0.5 g/m² to 10 g/m² ([0124]).

(3) Davis et al. (# US 5695820) teaches that to get the uniform distribution of the reaction solution and ink composition, the reaction solution (treatment solution) (column: 3, line: 5-10) for use in image recording in conjunction with ink containing a coloring

material in a dissolve or dispersed state (column: 3, line: 1-5; column: 6, line: 58-67), the reaction solution including polyvalent metal ion (salt) (column: 4, line: 1-33) and organic solvent (column: 7, line: 5-40) and wherein the amount of polyvalent metal salt is from 1 to 11% by weight more preferably 3 to 6 % by weight (column: 4, line: 39-42). They also disclose that the reaction solution further contains a strong acid ion (column: 6, line: 19-45) and a buffer (column: 7, line: 20-25).

(4) Takemoto (# US 6341854) discloses the ink jet recording method using two liquid, wherein reaction solution composition including polyvalent metal salt in an amount of 0.1 to 40% by weight (column: 5, line: 10-35). They also discloses that the ink composition including pigment or dye as a colorant (column: 7, line: 10-40).

(5) Miyabayashi (# US 6538047) discloses the ink jet recording method using two liquid, wherein reaction solution composition including polyvalent metal salt (column: 18, line: 55-67) in an amount of 0.1 to 40% by weight (column: 19, line: 5-10); polyol, acid, buffer (column: 19, line: 30-55) and organic solvent (column: 20, line: 1-20). They also discloses that the ink composition including pigment or dye as a colorant (column: 9, line: 1-60).

(6) Lin et al. (# US 5531818) discloses that eh inkjet ink composition including dye or pigment use as a colorant (see Abstract) and boric acid (column: 11, line: 25-30).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manish S. Shah whose telephone number is (571) 272-2152. The examiner can normally be reached on 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Manish S. Shah
Examiner
Art Unit 2853


MSS

5/11/04